



Instructional strategy model based on reciprocal teaching model (ISM-RTM): Case study in inclusive classrooms in higher education

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Abstract

Instructional strategies in inclusive classrooms in higher education have not become an essential concern for lecturers who teach in inclusive classrooms. During this time, instruction has not accommodated all students' needs and competencies with various characteristics and learning styles. This research aimed to identify students' opinions about implementing the instructional strategy model based on the reciprocal teaching model (ISM-RTM) in inclusive classrooms in the university. Data were gathered using classroom observations and face-to-face interviews with 24 teacher students (22 females; 2 males), consisting of 22 regular students (RS) and 2 students with special needs (SSNs). Data analysis used a qualitative analysis model with three steps. The study results revealed that the ISM-RTM could achieve competency, namely, develop emotional skills, cognitive skills, and social skills in all students. In conclusion, the implementation of ISM-RTM was suitable for instruction in inclusive classrooms with the different characteristics, learning styles and specificity of students in higher education

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Introduction

Instruction in inclusive classrooms in higher education determines the competencies that all students will obtain, including students with special needs (SSN). The competencies that all students will possess will largely determine students' success when entering the workforce (Patrick, Worthen, & Frost, 2018). Learning must involve communication, collaboration, innovation

and critical thinking to fulfill all the competencies needed to work properly. Lecturers must design instruction that can accommodate all students' needs with different characteristics, strengths, and different learning styles to fulfill all the skills students must possess (Ungar, Margaliot, Grobeld, & Leshem, 2018).

To achieve instructional objectives that can meet the needs and competencies, the lecturer must design instructional strategies that can accommodate students' characteristics. Lecturers must create instructional strategies that can involve activeness, collaboration and respect for all the limitations and weaknesses of all students (Sayeski, 2009; Buli-Holmberg &

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Jeyaprathaban, 2016). For the instructional strategy to be compatible with inclusive classrooms' characteristics, the lecturer must understand all students' characteristics, learning styles, weaknesses and strengths. This is so that we can achieve all student competencies following instructional objectives (Gregory & Chapman, 2012).

However, the fact is, there are still many lecturers who do not understand, plan and implement learning or instructional strategies that are friendly and follow the characteristics of inclusive classrooms. Various problems faced by lecturers in inclusive classes related to instruction in higher education are still limited to complete the obligation to deliver subject matter, without regard to the real instructional objectives (Michel, 2019; Molina, Perera Rodríguez, Melero Aguilar, Cotán Fernández, & Moriña, 2016). Lecturers do not understand students' characteristics, especially SSN, and continue using one-way instructional methods with the lecturer as a learning center. The impact is that not all competencies that students should obtain can be optimally accommodated. For this reason, instructional strategies should be an essential concern for lecturers before carrying out learning to achieve instructional objectives following predetermined strategies (Ávila et al., 2019).

One instructional strategy that can develop student skills in inclusive classrooms is an instructional strategy model based on the reciprocal teaching model (ISM-RTM) (Mitchell, 2008). The ISM-RTM is a model that can maximize student competency in learning activities for all students, including students with special needs (Brown & Palincsar, 1987; Cárdenas & López-Pinzón, 2019; Palincsar, 2019), a set of learning plans that involve

students in developing cognitive aspects influenced by interactions with people who have extensive knowledge, such as experts, educators, parents and peers, who encourage students to have more expertise be more competent (Clark, 2003; Rosenshine & Meister, 1994). Meanwhile, ISM-RTM involves all class members learning from each other. Lecturers can facilitate learning by grouping students in groups consisting of students with special needs and regular students, so they teach one another. The purpose of the ISM-RTM is to provide reading or cognitive understanding, provide learning experiences and improve the affective aspects of mutual respect and empathy between students to achieve learning targets following the lecturer's goals (Mitchell, 2008). The main steps of reciprocal teaching model are display in the [Figure 1](#) below:

ISM-RTM is an instructional model with 5 stages with each stage consisting of specific activities. The first stage is reading, which provides the opportunity for students to read material (reading text), which is done by reading silently or orally according to the student's abilities. The second stage is discussion, which is carried out by asking a number of questions about the reading content and providing opportunities for students to provide additional questions. This discussion aims to provide an in-depth understanding of the reading content through interesting questions in order to obtain interesting information from the content / subject matter. The third stage is summarize, which involves making statement sentences related to points or conclusions from the content/subject matter through discussions that have been carried out. The fourth stage is clarifying or confirming the content/material that has been studied

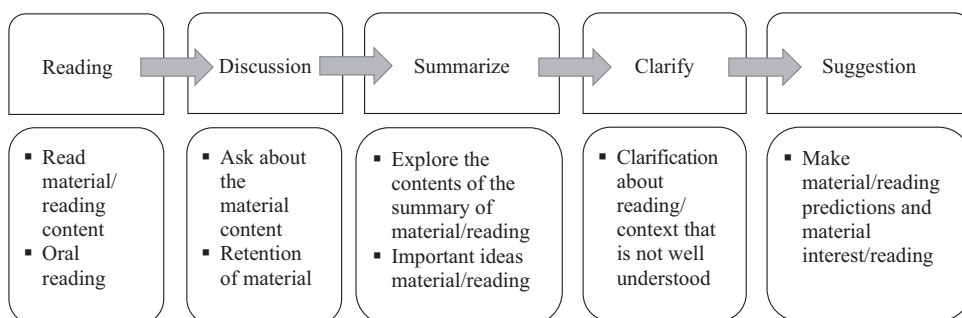


Figure 1 Reciprocal Teaching Model (Mitchell, 2008)

if there are still statements that are not understood or unclear. The fifth stage is suggestion, which involves giving suggestions and asking students to make a “prediction” of the next content / material. This involves previous knowledge through symbols, pictures, graphics or issues that aim to make students have an interest in learning the next lesson content (Mitchell, 2008).

The purpose of this study was to explore student opinions about the competencies of implementation of the ISM-RTM in inclusive classrooms in higher education.

Methodology

This study used a qualitative approach with a case study to identify student opinions about the ISM-RTM in inclusive classrooms in higher educations. A qualitative approach explores people’s opinions or thoughts more deeply about the topic being studied (Khotari, 2004).

Participants

Participants in this study came from one of the inclusive classrooms in the elementary school curriculum development course at one of the private institutions of higher education in West Java, Indonesia. The students involved were 5th-semester, with a total of twenty-four ($N = 24$) students consisting of twenty-two females and two males with an age range of 18–19 years old. The number of SSN (2 males) in this classroom was two in the cerebral palsy category and another was categorized as a slow learner.

Characteristics of a student with cerebral palsy in this class were an abnormality in one of the arms and fingers that could not be moved, so there was a limited movement in the right-hand area while slow learner students with characteristics have low learning motivation, low learning outcomes and weak interaction and communication. Such was the case with the slow learner student in this study. Lecturers involved in learning were female lecturers with teaching experience for seven years and competence in inclusive classroom learning.

Material and Methods

The research was conducted in one of the private universities that openly accept all students’ characteristics, both RS and SSN. Some types of SSNs who have been accepted are slow learners, cerebral palsy, ADHD, learning difficulties, bipolar, limited vision (low vision). This university-based on Islamic Tauhid (Monotheism) provides opportunity and justice for every student to get an education without exception.

Classrooms were set according to class categories that have SSNs. Arrangement of physical facilities such as chairs, tables or other learning tools illustrates the academic conditions that can create a conducive learning environment for all students to develop all their potential, including SSNs. Instruction was carried out inside and outside the classroom with various instructional methods such as observation, discussion and practice.

During this study, the course used was the elementary school’s curriculum development, with five meetings, with each meeting consisting of 1.5 hours to 2 hours of face-to-face learning. Instructional materials included the curriculum’s basic concepts, curriculum development foundation, curriculum components, curriculum design and curriculum development models. Besides to fulfill regular instructional materials and major research, lecturers created ISM-RTM. [Table 1](#) below is an example of an ISM-RTM:

Data Collection

Data collection was done through several data sources, namely, classroom observation, interviews and documentation. Observations were conducted to determine the instructional process for all the class members on the learning process using the ISM-RTM from the initial instruction to the end instruction. The observation instrument used an observation guide related to instruction using the ISM-RTM. The interview was conducted with a semi-structured face-to-face session, which had been designed to identify SNSs opinions. The questions provided consisted of twelve open questions to get more in-depth data. Two experts validated interview questions with instructional design and inclusive education expertise, which upon revisions were made according to the expert’s direction.

Table 1 An example of Implementation of ISM-RTM

No	Material / Topic of learning	RTM	Steps / Learning Sequence Learning	Method	Media	Materials	Assessment	Time allocation
1	The basic concept of curriculum							
	Initial instructional activities	Reading	<ul style="list-style-type: none"> a. Lecturers provide reading material or references that students must read with their respective groups. b. Each group found a problem that occurred following the topic of the lesson 	Exercise Discussion	Infocus Powerpoint	e-book journal	Discussion rubric	20 minutes
	Main Instructional Activities	Discussion	<ul style="list-style-type: none"> a. The lecturer asks each group to divide their group members between choosing one topic to focus on. b. Lecturers create small discussion groups with the same issue as other groups or expert groups. c. Every group member who has the same topic discusses the topic regarding a problem. 	Jigsaw Discussion	Infocus Powerpoint	e-book journal	discussion rubric	20 minutes
		Summarize	<ul style="list-style-type: none"> a. Each group member returns to his homegroup. b. Each origin group explains each topic from the expert group. c. Each origin group presents the topics that are considered the most important to be displayed. 	Jigsaw Discussion of	Infocus Powerpoint	Journal e-book	Rubric	35 minutes
		Clarify	<ul style="list-style-type: none"> a. Each group discusses, and the teacher asks all groups to present arguments with other groups and give an opinion 	Discussion on	Infocus Powerpoint	Journal e-book	-	25 minutes
	Closing Activities	Suggestion	<ul style="list-style-type: none"> a. The lecturer explains the topic that each group is still debating. b. Lecturer makes a conclusion 	Expository			-	15 minutes

Note: Lecturer Reflection on instruction:

The advantages of today's learning are that all students, including SSN, actively discussed and gave opinions. Each group leader provided equal opportunity for group members to be able to give their opinions. Each group could already explain the purpose of the topic being studied.

Weaknesses: There are still students who are not confident when presenting or speaking in front of the class, including SSN, so they must practice often.

For future efforts, SSN must be given a "bigger" portion so that their self-confidence is higher and their motivation for learning will be better.

The interview stage was conducted for three days with ten people of 24 students every day, with an average of 3–4 hours. Primary data were collected from video audio recordings, particularly to the instructional process used in ISM-RTM. The recording was done in the instructional process using video and voice messages by placing a camera in front of the class to facilitate all observations. Meanwhile, the researcher held the other camera to participate in all lecturer and student activities during the instructional process. There were fourteen observations in instruction, with each observation duration of 1.5–2 hours. The researcher considered that only the application of the ISM-RTM that had been appropriately implemented would be selected. For that, the researcher chose five observational data from fourteen observations. Furthermore, the recordings were interpreted in several transcripts, which became the basis for carrying out data analysis.

Instruments

The instruments used consisted of two types, namely observation and interview.

The observation instrument consisted of an observation guide based on the conceptual definition of the ISM-RTM. The guide focused on 5 steps that had been designed in the form of learning content. Researchers had to ensure that each step had been carried out by the lecturer (given a checklist). Meanwhile, the interview instrument consisted of twelve open questions, which were given to RSs and SSNs. The interview technique used was a semi-structured and open-ended interview type so that researchers could explore every question and answer from each student. The interview instruments consisted of three general parts, namely, students' understanding of ISM-RTM, the benefits of

using ISM-RTM and obstacles in implementing ISM-RTM in an inclusive classroom. Both RSs and SSNs were given the same questions so that the researchers could explore each student's answer. In the end, there were answers that varied depending on student characteristics.

Data Analysis

Data analysis was performed using a qualitative analysis model (Spradley, 2016; Jamaris & Hartati, 2017) consisting of three steps, namely: (1) thematic analysis of all participants, observing the instructional process from the initial instructional to the end of instruction to all class members, create field notes, and coding; (2) within-participants thematic analysis; making some categories to be specific themes; and (3) cross participant analysis, determine common themes. Furthermore, determining a cultural theme was the final step in data analysis to implement the ISM-RTM in inclusive classrooms in higher educations. Table 2 describes the process used in the results of data analysis:

Results and Discussion

The results of data analysis are illustrated in Figure 2 below:

At the lowest level (A1-E25) are activities carried out at each learning step, which is obtained from observation activities (the thematic analytic process step). Furthermore, at the second level, it produces categories resulting from observations and interviews (within participants). The third level results in combining several categories to produce specific themes (cross participants).

Table 2 Qualitative analysis model (Spradley, 2016; Jamaris & Hartati, 2017)

Included Term	Semantic Relation	Cover Term
- Foster interest in learning - Increase learning motivation	Is part of	Emotional skill development
- Growing a culture of literacy problem-solving skills - Practicing-Adding new knowledge	Is part of	Cognitive skill development
- Improve collaboration - Improve learning interactions	Is part of	Social skill development

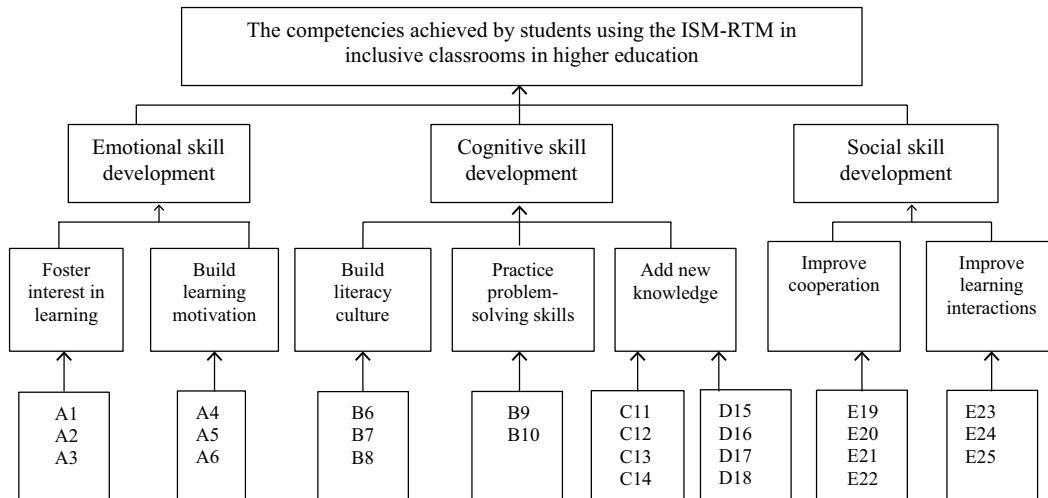


Figure 2 Competencies achieved by students using the ISM-RTM model in inclusive classrooms

Notes: A1 = Lecturer sings together with the students; A2 = Lecturer creates a game in class; A3 = Lecturer presents an example case; A3 = Lecturer explains the benefits of the lesson; A4 = Lecturer explains the lesson's linkage to daily life; A5 = Lecturer asks about problems that are relevant to the topic; B6 = Lecturer gives the topic of reading; B7 = The lecturer provides a chance for each student to make important points from reading; B8 = Students focus on reading material that is not yet understood or that is important to discuss; B9 = Students look for reading material that is the same as the topic to be addressed; B10 = Lecturer makes opening questions for a case; C11 = Lecturer provides opportunities to each group member to discuss the topic according to the reading; C12 = Each group member presents reading material that is the focus and topic according to their task; C13 = Each group member exchanges reading material with other group members with the same topic; C14 = Each group member with the same topic and focus has a discussion; D15 = Each group member returns to his group early to discuss ; D16 = Each group member provides opinions and solutions to the topic in the form of a problem; D17 = The lecturer allows each group to present the problem according to the topic; D18 = The lecturer gives clarification and understanding to all students ; E19 = Students work and study together in a group; E20 = Regular students discuss with SSNs; E21 = Regular students listen to SSNs' opinions; E22 = All students play together in a group; E23 = Each student gives an opinion in groups; E24 = SSNs give an opinion in the group; E25 = Each student is involved in a presentation (question and answer).

Emotional Skill Development

Emotional skills development is an ability that students will possess after undergoing learning, especially using the ISM-RTM. Emotional skills development helps foster student interest in learning and fosters a motivation to learn (Foster, 2019; Vongkulluksn, Matewos, Sinatra, & Marsh, 2018). Students' positive and negative opinions towards emotional development give more positive impacts than negative impacts to better develop development emotional competence. The most challenging thing for a lecturer when teaching lecture material is to foster student interest in learning so that students want to learn the subject matter. This is related to the background of each different student. Not every student has the same learning ability and academic achievement. In inclusive classrooms, with differences and characteristics, a lecturer must invite all students to

have a positive interest in learning (Pearson et al., 2019; Van der Bij, Geijsel, Garst, & Ten Dam, 2016).

The use of ISM-RTM through 5 stages of activity provides free space for lecturers to foster student interest in learning. Students are given activities that directly practice what will be learned without dictating or explaining at length and without knowing the material's substance. This is consistent with the opinion of SSN below:

"For me, it is challenging to start learning because of the limitations of my movements. Sometimes I am shy and not open enough to begin studying. But when a lecturer starts learning by giving an example of someone's success, I become interested in learning."

The use of methods adapted to students' ability, encouragingly, will increase student interest in learning (Johnson, 2017). Besides, lecturers can explain learning by linking subject matter with a person's success story

to learn the material. Moreover, such is the case with the characteristics of students who have different backgrounds, diversity, and learning styles. In the ISM-RTM, it is hoped that an exciting and enjoyable learning atmosphere can give students an idea of their learning goals and the benefits that will be achieved in the future.

All students are actively involved in every learning activity, including students with special needs. For RS, the use of the ISM-RTM can foster motivation to learn, such as the opinion below:

“It is important for me to have the motivation to learn so that I know what I am learning and what the benefits of the lesson are. My lecturer has given a concrete example in a game that can motivate me to complete the instructional objectives without me knowing before.”

Fostering motivation to learn for students aims to understand the subject matter’s purpose to be learned. Of course, this is related to the interest in learning, which also grows at the beginning of learning. High motivation to learn will make it easier for students to achieve the stated lesson objectives before learning (Billingsley, Thomas, & Webber, 2018).

Cognitive Skills Development

Cognitive skills development is the ability to think from remembering to evaluation and creation, which is done by combining several ideas and ideas to solve problems. Student’s opinions on developing cognitive skills provided consisted of more positive opinions than negative opinions. The use of the ISM-RTM model provides an opportunity for students to solve problems through reading activities, discussions, understanding the contents of the material read and classifying the reading contents to conclude a particular topic. This ISM-RTM model’s benefits can improve student literacy, problem-solving skills and ability to gain new knowledge, which has been an issue in previous lessons or even material that has never been discussed at previous meetings.

The use of the ISM-RTM has provided opportunities for every student to be able to practice problem-solving skills. Practicing problem-solving is very important for all students, including students with special needs (Karatas & Baki, 2017). It is hoped that this exercise

is a positive step when they work at an institution after college. Students are expected to provide solutions to problems that occur at work as part of problem-solving. This is related to SSN’s opinion:

“I am ashamed to express opinions in-group members, but now I am given the opportunity, even encouraged by friends, to be able to give opinions and ideas so that I feel the same as my friends when they express an opinion.”

Both student opinions give an overview that the use of the ISM-RTM provides an opportunity for every student to be active, express opinions and ideas related to problems or questions that must be solved together. Equal opportunity without discrimination and fairness for each group member in expressing opinions can practice problem-solving skills more clearly (Siegel-Hawley & Frankenberg, 2012).

Each student can express opinions or ideas that are processed from various sources to be discussed together in a group forum. Reading activities and expressing their opinions are felt by students to provide many benefits (Rogers & Ardoin, 2018). Among other things, such can add insight to knowledge, understand the renewability of the source of knowledge from books, journals, and opinions and can solve problems faced by students related to the subject matter. This benefit can be illustrated by one of the following regular students:

“I am lazy to read, but with the learning process of this RTM model, I have to read, and it helps me to be diligent in reading. This greatly affects my reading activity.”

The ISM-RTM provides new knowledge from the subject matter being studied and trains problem solving and critical thinking. Through reading activities at the beginning of instruction, students must understand the material, process and produce opinions following the theory and dynamics of the development of developing science (Molotja & Themane, 2018).

Social Skills Development

Social skills describe social interaction both between lecturers and students and between students and students. Student’s opinions about developing social skills provided consisted of more positive opinions than negative opinions. Social skills describe social interaction both between lecturers and students and between students and

students. Besides, good cooperation between lecturers and students and students and students will improve social skills (Doyle, 2012).

The ISM-RTM provides opportunities for each student to understand the topic being studied through discussion, question and answer and debate activities. Through the ISM-RTM, starting from the beginning of learning, lecturers have designed learning so that activities are carried out in groups. The information obtained by each group member varies and complements each other.

Some positive opinions of this collaboration, according to students, can hone one another's empathy, mutual respect for opinions and increase learning activity (Elfrida Yanty Siregar, Rachmadtullah, Pohan, Rasmitadila, & Zulela 2019). In-group activities, selfishness can usually be reduced because there is mutual respect. Even such, selfish feelings of acceptance of opinions are often seen in discussion activities, especially for regular students. In addition to positive opinions, there are negative opinions from collaborative activities carried out by students, such as if they do not agree or disagree with SSNs; it is not uncommon for SSNs to get bullied, especially in the form of verbal expression. This feeling of getting bullied remains when SSNs attend group discussion forums. This opinion can be seen in the opinion of SSNs below:

"I was a bit worried when my discussion and opinion were not considered. I am afraid of getting bullied by other students. This is because several times, I've felt it."

The ISM-RTM can train this sense of cooperation through the stages of the learning model. Like the discussion stage, summarize and clarify stages, which provide equal opportunities for each group member to express their opinions. Of course, supervision from the lecturer is required to proceed according to the stages and achievements key in implementing ISM-RTM.

Every step in the ISM-RTM provides opportunities between lecturers and students and students and students in all directions of learning interactions. The interaction of learning in inclusive classrooms is the key to success in learning. Without interaction, lecturers find it difficult to know their achievement or understanding of the material being studied.

In inclusive classrooms where students have diverse characteristics, learning interactions become unique (Rasmitadila, Samsudin, & Prasetyo, 2019). This is true

especially in the interaction between regular students and special needs students. The interaction between the two must often use different methods and requires patience for the interaction to take place. For regular students, they should assume that SSNs also get the same opportunities in learning, expressing opinions so that they still get equal rights as other students. The RS must understand the limitations and weaknesses of every SSN so that the attendance and opinions of SSNs are as important as the presence and opinions of the RS.

Differences in characteristics and the diversity of learning styles in inclusive classrooms should be a concern for lecturers. This greatly affects the achievement of all students and the class to understand the material being studied. Interaction in learning is about teachers knowing about the achievement of learning outcomes and understanding what difficulties students face when studying (Harper, 2018).

Conclusion and Recommendation

Student opinions about the use of the ISM-RTM positively impacted emotional skills development, cognitive skills and social skills for all students, including SSNs. Emotional skills development was evident by the growing interest in learning and increased motivation to learn. The development of cognitive skills was shown by the growth of a literacy culture, practice as a problem solver and increased new knowledge for students related to the topic or material being studied. The development of social skills is shown by the formation of cooperation between students and the occurrence of interactions in learning activities.

The use of the ISM-RTM is very suitable for inclusive classrooms in higher education. The ISM-RTM can accommodate all the needs of students with various characteristics, learning styles and strengths and weaknesses when implementing learning.

Conflict of Interest

There is no conflict of interest.

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